



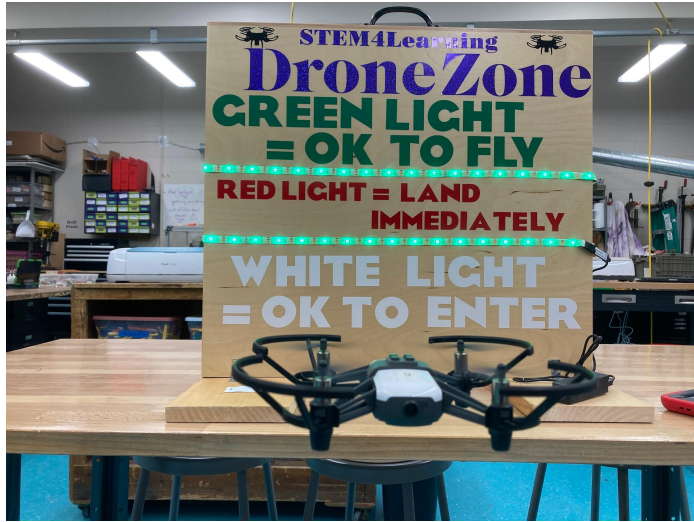
## Using DJI Tello Drones in the Classroom

If you are looking for a high-engagement, code-based technology project for your classroom, there might not be anything more fun than bringing drone science into your classroom. There are so many levels of implementation - this can be a fun weeklong “let’s learn to code in 3-dimensions project or could become a massive interdisciplinary history and science of flight unit tracing the past 120 years of development since the Wright brothers' first flight. STEM4Learning has a set of 15 DJI Tello drones, which we have found to be the best drone for safe indoor use (our preference is a gymnasium or cafeteria space, although we do successfully fly them all inside our Creation Studio (with tight protocols). The drones utilize a Bluetooth connection from an iPad app - and each drone needs its own iPad for them to fly simultaneously. There are several flight control apps, but we prefer the DJI Tello education app for direct control flights and the Droneblocks app (free) for coding. For the workshop, as long as we have dependable connections to your local Wi-Fi network, we can bring everything we need to your site for a hands-on workshop.

Here are a few ways we’ve used the Tello Drones in our Makerspace with the students:

- Building teamwork - we always fly in pairs, with one operating the actual flight controls while the second serves as air traffic control and drone safety officer, observing all the traffic in the flight area and helping avoid collisions. Eventually, this moves to a partnership where the student manning the controls is blindfolded and learns to navigate the course based solely on instructions and feedback from their partner.
- Problem-solving scenario - students are given the task of delivering fire suppressants (small Lego bricks) to a forest fire, navigating through a series of obstacles en route. This can be accomplished with direct flight control (and even blindfolded) or can also be coded from liftoff to landing with no direct control in between.

- Tournament of Drones - this is the creation of SheMaps.com - a great Australia-based drone education team that has a wonderful site full of great information about implementing drones in education and many different applications. This website is an incredible resource on creating this culminating activity:  
<https://shemaps.com/blog/how-to-run-a-tournament-of-drones-at-your-school/>
- Building career connections - we are fortunate to have Beta Technologies as an incredible resource in Burlington, Vermont, and many times our students have been able to visit their testing and production facilities to see how this technology is going from classroom fun to dependable, sustainable human transportation systems.  
<https://www.beta.team/>



We love our set of DJI Tello, and it is one of those units that students are always talking about - who doesn't love to make things fly? There is a pretty steep learning curve, both to learn how to actually fly the drones and, more importantly, how to implement these safely and effectively in your classroom. The consultants at SheMaps have been lifesavers. We follow their protocols to the letter as they are probably the most experienced drone educators for public school teachers and students worldwide. We will discuss this as an important part of the workshop as we think it is perhaps the most important element of learning how to implement this tool in our Creation Studio and learning that we love to share.